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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/734,176	12/12/2000	Takumi Mikawa	0819-466	5101

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EXAMINER

LOKE, STEVEN HO YIN

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 02/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

CT

Office Action Summary	Application No.	Applicant(s)	
	09/734,176	MIKAWA ET AL.	
	Examiner	Art Unit	
	Steven Loke	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,10,13-15,17-19 and 21-28 is/are pending in the application.
- 4a) Of the above claim(s) 3-5 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,10,13-15,17-19,23,25 and 26 is/are allowed.
- 6) ☒ Claim(s) 21, 22, 24, 27, 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. Claims 21, 22 and 27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification (page 7, lines 9-10, page 14, lines 14-15) discloses the multilayer structure is made up of metal oxide and metal nitride films. The specification never discloses the multilayer structure being made up of metal oxide films and metal nitride films as claimed in claim 21.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 21, 22, 24, 27 and 28 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Jung et al. (U.S. Patent no. 6,515,323).

In regards to claim 21, Jung et al. show all the elements of the claimed invention in fig. 1J. It is a semiconductor device, comprising: a lower electrode [112] formed on a substrate [100]; a capacitive insulating film [114] made of a ferroelectric film on the lower electrode; an upper electrode [118] formed on the capacitive insulating film; a contact layer [120] formed directly on the upper electrode [118] so as to be in no contact

with the capacitive insulating film [114]; and an insulating film [122] formed directly on the contact layer [120] so as to cover the lower electrode [112], the capacitive insulating film [114] and the upper electrode [118], and the insulating film [122] being connected to the lower electrode [112] and/or the capacitive insulating film [114], wherein the entire upper surface of the upper electrode [118] is in no contact with the insulating film [122], and wherein the contact layer [120] is a single-layer film, the single-layer film being made of a metal oxide (titanium dioxide), and wherein a portion of the upper surface of the capacitive insulating film [114] is covered by the insulating film [122].

In regards to claim 22, Jung et al. further disclose the metal oxide film [120] is made of an oxide of Ti.

In regards to claim 27, Jung et al. further disclose the contact layer [120] is provided on a surface of the upper electrode [118] and in a region other than the region where a metal interconnect [138] is connected to the upper electrode [118].

In regards to claim 24, Jung et al. show all the elements of the claimed invention in fig. 1J. It is a semiconductor device, comprising: a capacitor formed on a substrate [100] and the including a lower electrode [112], a capacitive insulating film [114] of a ferroelectric film and an upper electrode [118]; and a contact layer [120] formed directly on the upper electrode [118] so as to be in no contact with the capacitive insulating film [114], wherein the entire upper surface of the upper electrode is in no contact with an insulating film [122] which is formed directly on the contact layer [120], so as to cover the capacitor device, and in contact with the lower electrode [112] and/or the capacitive insulating film [114], and wherein the contact layer [120] is a single-layer film, the single-

layer film being made of a metal oxide (titanium dioxide), and wherein a portion of the upper surface of the capacitive insulating film [114] is covered by the insulating film [122].

In regards to claim 28, Jung et al. further disclose the contact layer [120] is provided on a surface of the upper electrode [118] and in a region other than the region where a metal interconnect [138] is connected to the upper electrode [118].

4. Applicant's arguments filed 11/12/04 have been fully considered but they are not persuasive.

It is urged, in page 10 of the remarks, that claim 21 have been amended in order to recite claimed features which are clearly supported by the specification. However, there is no amendment in claim 21 to correct the 112, first paragraph issue.

5. Applicant's arguments with respect to claims 21, 22 and 24 have been considered but are moot in view of the new ground(s) of rejection.

6. Claims 1, 10, 13-15, 17-19, 23, 25 and 26 are allowed.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Loke whose telephone number is (571) 272-1657. The examiner can normally be reached on 7:50 am to 5:20 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (571) 272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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February 9, 2005

Steven Loke